

Operating Instructions for Regeneration Unit



1. Number of Unit(s) to Be Connected

If sufficient regenerative resistance is not provided from the connected regeneration unit(s), the following problems will occur:

- X-SEL
“E65, F63: Regenerative resistor temperature error” will generate.
Insufficient resistance capacity may also be a cause of “E88: Power supply error.”
- E-Con
Alarms are not detected on this controller.
Accordingly, lack of regeneration unit(s) will lead to heat generation. Exercise due caution.

- [1] Small X-SEL (J type) controllers and E-Con controllers
A regeneration unit or units will be required only when one or more of the actuators will be used as a vertical (Z) axis(es).

Total wattage of vertical axes	Reference number of regeneration unit(s) to be connected	
	X-SEL, small	E-Con
~150 W	0	0
~200 W		1
~400 W	1	
~750 W	2	2
~800 W		

- [2] General-purpose X-SEL (K type) controllers
A regeneration unit or units will be required only when one or more of the actuators will be used as a vertical (Z) axis(es).

Total wattage of vertical axes	Reference number of regeneration unit(s) to be connected
~400 W	0
~800 W	1
~1200 W	2
~1600 W	2~5 *

- * When the total wattage is 1200 W or more, how many units should be connected will vary depending on the specific conditions of use.
 The table below provides an example of our evaluation on how many regeneration units would be required under different conditions of use. Use this information as a guide when determining the number of regeneration units that should be connected to your system whose total wattage of vertical axes exceeds 1200 W.

Conditions of use

Actuator: 400 W (stroke 700 mm, lead 10 mm) x 4 axes
 Load: Rated load capacity
 Operating conditions: Repeated simultaneous reciprocating movement and stopping of 4 axes

Stationary time	Reference number of regeneration unit(s) to be connected
5 seconds	2
3 seconds	3
1 second	4
Continuous operation	5

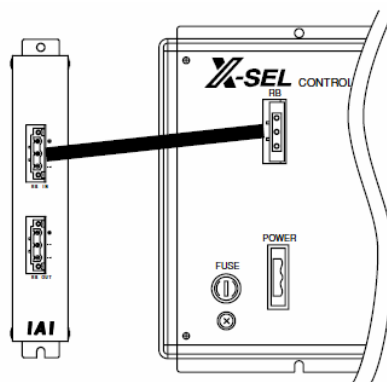
[3] X-SEL-P/Q type controllers

Total wattage of vertical axes	Total wattage of horizontal axes	Reference number of regeneration unit(s) to be connected
~100 W	~200 W	0
~800 W	~1000 W	1
~1200 W	~1500 W	2
~1600 W	~2000 W	3
~2000 W	~2400 W	4
~2400 W	-	5

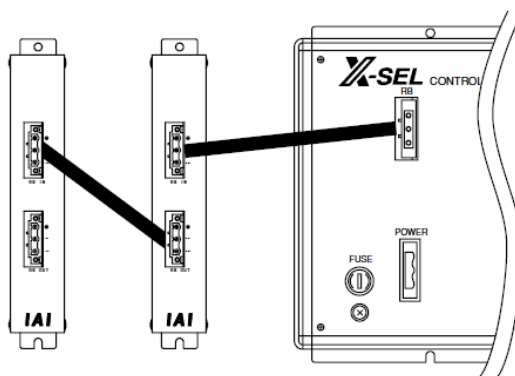
Speed: Rated Speed/Acceleration: 0.3 G Load: Rated load capacity
 Operating conditions : Synchronized reciprocating movement of axes at a duty of 50%
 Up to eight external regenerative resistors can be connected.
 In certain situations such as when the operation duty is high or acceleration/deceleration is high, more regenerative resistor(s) may be required than the applicable number specified in the above table.

2. How to Connect

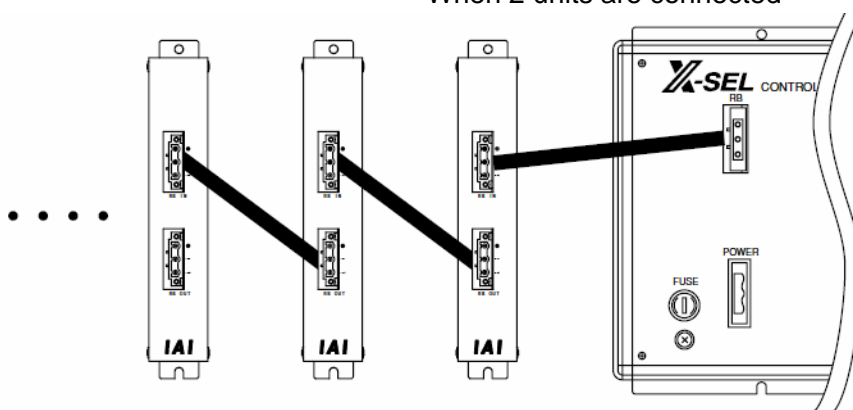
Use the supplied connection cable to connect the regeneration unit to the external regeneration unit connector on the controller.



When 1 unit is connected



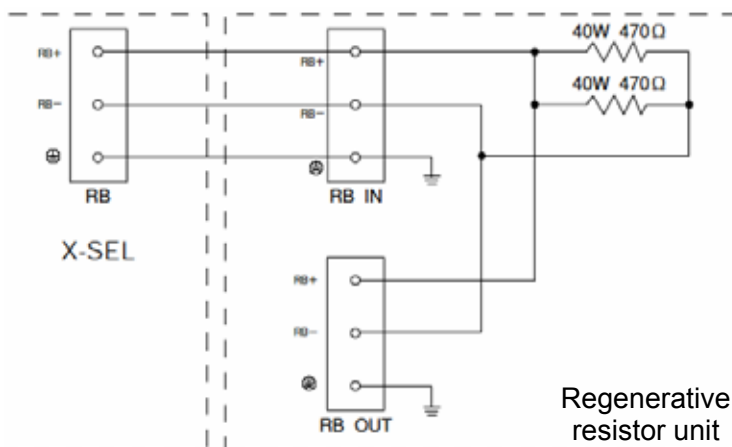
When 2 units are connected



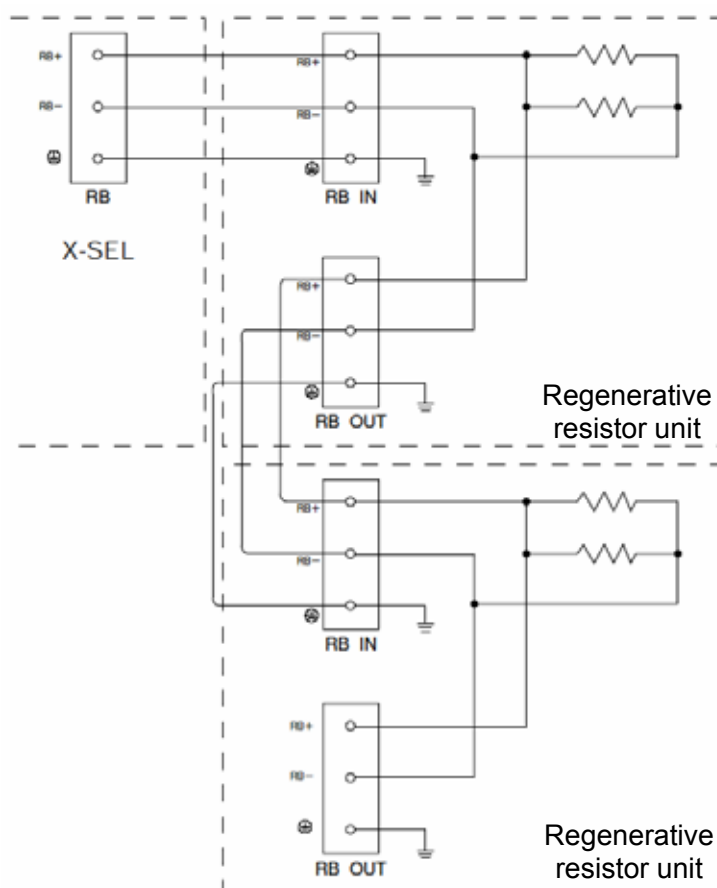
When 3 or more units are connected

Note: One regeneration unit cannot be shared by two controllers.

3. Circuit Diagram



When 1 unit is connected



When 2 units are connected

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